MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories

Michigan Department of Community Health
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New updates in this issue:

- **Michigan Surveillance:** Statewide 2009 H1N1 influenza activity appears to have peaked this fall during MMWR weeks 43 and 44; additional peaks in influenza activity during this flu season are possible.
- **National Surveillance:** Influenza activity continues decreasing; 32 states report widespread activity.
- **International Surveillance:** Influenza activity remains active across much of East Asia and Europe.

******2009 Influenza A (H1N1) virus Updates******

Please continue to reference the State of Michigan's novel 2009 influenza A (H1N1) website at www.michigan.gov/h1n1flu and the MDCH influenza website at www.michigan.gov/flu for additional information. Local health departments can find guidance documents in the MI-HAN document library. In addition to the previous websites, additional laboratory-specific information is located at the Bureau of Laboratories H1N1 page at http://www.michigan.gov/mdch/0,1607,7-132-2945_5103-213906--,00.html.

International (WHO H1N1 2009 update 76 [edited], November 27): In temperate regions of the northern hemisphere, the early arriving winter influenza season continues to be intense across parts of North America and much of Europe. In North America, the Caribbean islands and a limited number of European countries there are signs that disease activity peaked.

In the United States and Canada, influenza transmission remains very active and geographically widespread. In the United States, disease activity appears to have peaked in all areas of the country. In Canada, influenza activity remains similar but number of hospitalizations and deaths is increasing. Most countries in the Caribbean have ILI and SARI levels coming down.

In Europe, widespread and increasing transmission of pandemic influenza virus was observed across much of the continent and most countries that were not yet experiencing elevated ILI activity in the last few weeks, have seen a rapid increase in ILI. Very high activity is seen in Sweden, Norway, Moldova and Italy. Over 99% of subtyped influenza A viruses in Europe were pandemic H1N1 2009. Impact on health care services is severe in Albania and Moldova. Some countries seem to have peaked already: Belgium, Bulgaria, Belarus, Ireland, Luxemburg, Norway, Serbia, Ukraine and Iceland.

In East Asia, influenza transmission remains active. Intense influenza activity continues to be observed in Mongolia but has peaked already. In Japan, influenza activity remains stably elevated, but may be decreasing slightly in populated urban areas. ILI activity in India and Nepal and Sri Lanka has increased.

In the tropical zone of the Americas and Asia, influenza transmission remains variable but low in many countries. In the tropical areas of Central and South America, most countries continue to report declining influenza activity, with the exception of Ecuador and Venezuela.

In the temperate region of the southern hemisphere, little pandemic influenza activity has been reported.

The countries and overseas territories that have newly reported their first pandemic (H1N1) 2009 confirmed cases since the last web update (No.75): Armenia. The countries and overseas territories that have newly reported their first pandemic (H1N1) 2009 deaths since the last web update (No.75): The former Yugoslav Republic of Macedonia, Switzerland, Poland, Tunisia, Morocco and Madagascar.

Influenza Surveillance Reports

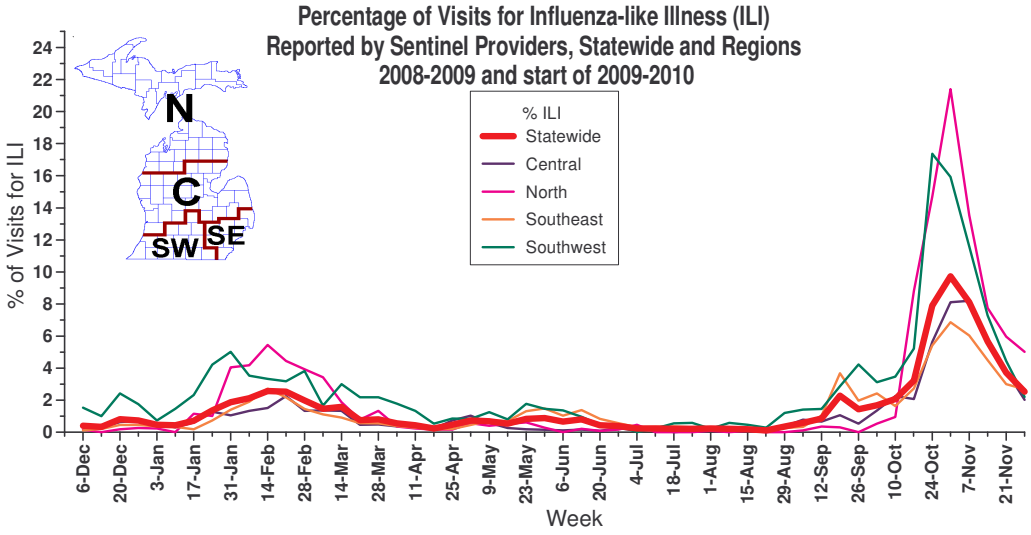
Michigan Disease Surveillance System: The week ending November 28 saw aggregate flu-like cases, individually reported influenza cases, and 2009 novel H1N1 case reports continue to decrease from the previous week's levels. Cases reported this week are notably higher than what was seen during the identical week of the previous year.

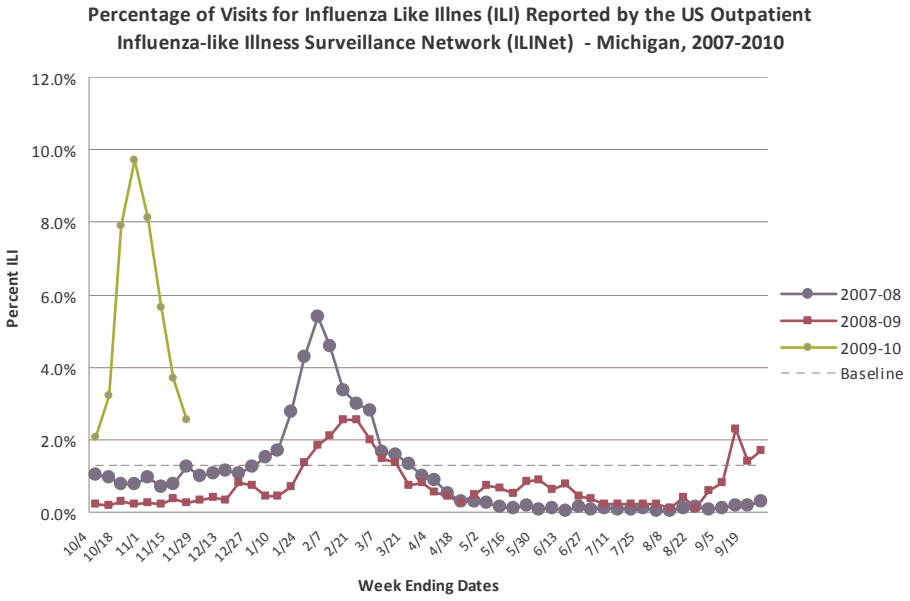
During the week of November 22-28, 2009, 10,059 cases of flu-like illness and confirmed and probable cases of seasonal and novel influenza were reported in Michigan. 150 hospitalizations and 5 deaths associated with influenza were reported during this time. This report is updated every Tuesday by 5:00 pm and can be accessed at "Current H1N1 Activity" on this website: http://www.michigan.gov/h1n1flu.

Emergency Department Surveillance: Emergency department visits from both constitutional and respiratory complaints were lower than last week's levels. Both constitutional and respiratory complaints are higher than, but approaching, levels seen at this time last year. There were two total constitutional alerts generated in the C(1) and N(1) Influenza Surveillance Regions last week. Four total respiratory alerts were generated in the C(3) and SE(1) Influenza Surveillance Regions last week.

Over-the-Counter Product Surveillance: Overall, OTC product sales were mixed. Thermometer sales decreased over the previous two weeks, while chest rubs increased slightly compared to the previous week. The remaining indicators held steady near the previous weeks' sales. All indicators, with the exception of thermometers, which are slightly higher, are comparable to levels seen at this time last year.

Sentinel Provider Surveillance (as of December 3, 2009): During the week ending Nov. 28, 2009, the proportion of visits due to influenza-like illness (ILI) decreased for the fourth consecutive week to 2.5% overall; 215 patient visits due to ILI were reported out of 8,452 office visits. 39 sentinel sites provided data for this report. Activity decreased in all surveillance regions: Central (2.0%), Southeast (2.7%), Southwest (2.2%) and North (5.0%). Please note that these rates may change as additional reports are received.





As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

Laboratory Surveillance (as of November 28): During the week of November 22-28, MDCH Bureau of Laboratories identified 32 novel H1N1 influenza A isolates and 5 unsubtypeable influenza A isolates. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 581 influenza isolates:

- Novel Influenza A (H1N1): 563
- Influenza A unsubtypeable: 17
- Influenza B: 1

14 sentinel labs reported for the week ending November 28, 2009. 1 lab reported decreasing but still elevated levels of influenza A positives (SE), 11 labs reported decreasing low or sporadic numbers of flu A positives (SE, SW,C, N), and 2 labs reported no flu A positives (C, N). No labs reported influenza B positives.

Michigan Influenza Antigenic Characterization (as of December 3): One novel H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010 Southern Hemisphere vaccine.

Michigan Influenza Antiviral Resistance Data (as of December 3): Results are currently not available for antiviral resistance at CDC for the 2009-2010 season.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at http://www.cdc.gov/H1N1flu/recommendations.htm.

Influenza-Associated Pediatric Mortality (as of December 3): Four influenza-associated pediatric mortalities (SE(2), SW, N) associated with novel H1N1 influenza has been reported to MDCH for the 2009-2010 influenza season.

***CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of December 3): 7 congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (2SE, 3 SW, 1C, 1N), and two outbreaks associated with positive influenza A tests (1C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are 8 school facilities and 1 long term care facility.

As of 12:00pm on December 3, 2009, 569 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 54, Region 2N - 5, Region 2S – 8, Region 3 - 54, Region 5 - 153, Region 6 - 104, Region 7 - 109, Region 8 - 82) have been reported.

National (CDC [edited], November 30): During week 46 (November 15-21, 2009), influenza activity continued to decrease in the U.S. 1,880 (20.5%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. Over 99% of all subtyped influenza A viruses being reported to CDC were 2009 influenza A (H1N1) viruses. The proportion of deaths attributed to pneumonia and influenza (P&I) was above the epidemic threshold for the eighth consecutive week. Thirty-five influenza-associated pediatric deaths were reported. Twenty-seven of these deaths were associated with 2009 influenza A (H1N1) virus infection, seven were associated with an influenza A virus for which the subtype was undetermined, and one was associated with a seasonal influenza A (H1) virus infection that occurred in March. The proportion of outpatient visits for influenza-like illness (ILI) was 4.3% which is above the national baseline of 2.3%. All 10 regions reported ILI above region-specific baseline levels. Thirty-two states reported geographically widespread influenza activity, Puerto Rico and 17 states reported regional influenza activity, the District of Columbia and one state reported local influenza activity, and Guam and the U.S. Virgin Islands reported sporadic activity.

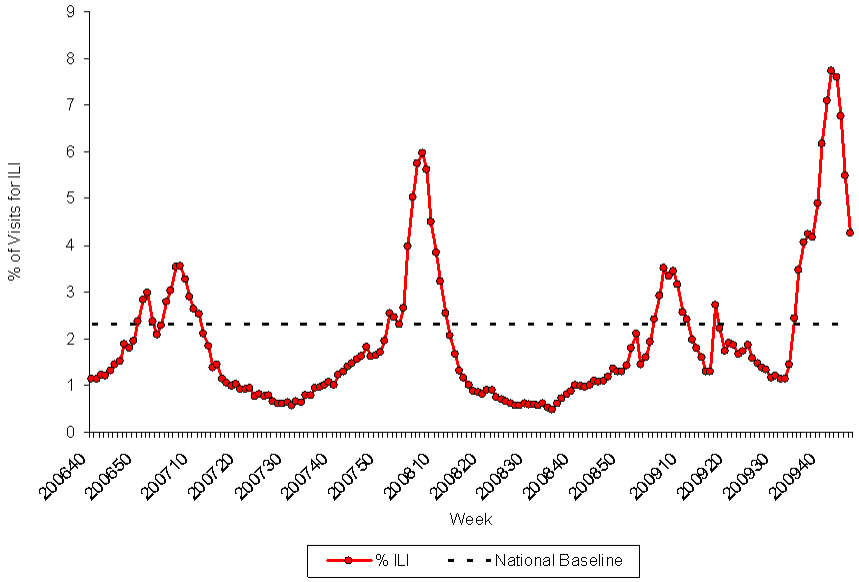
CDC has antigenically characterized one seasonal influenza A (H1N1), three influenza A (H3N2), four influenza B, and 412 2009 influenza A (H1N1) viruses collected since September 1, 2009.

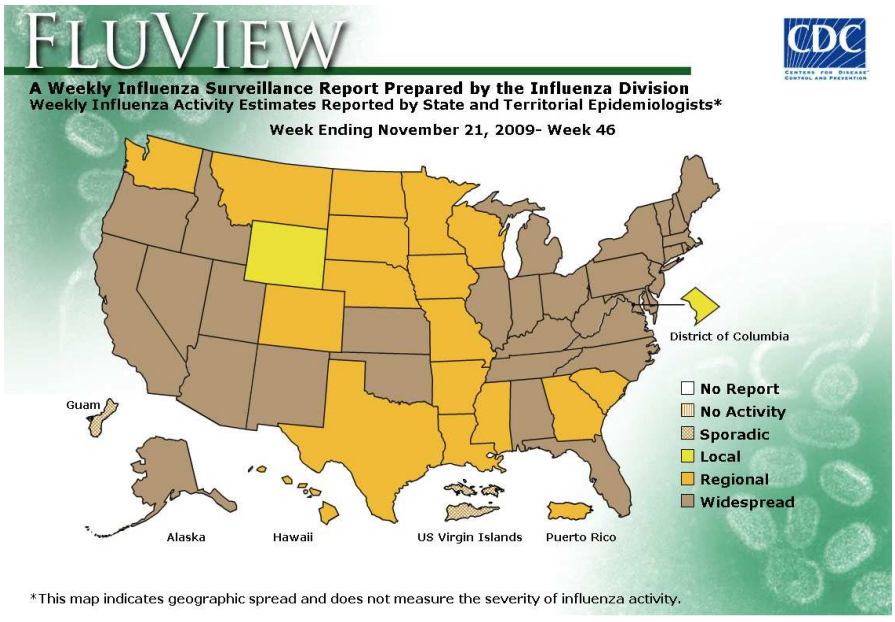
One seasonal influenza A (H1N1) virus was tested and is related to the A (H1N1) component of the 2009-10 Northern Hemisphere influenza vaccine (A/Brisbane/59/2007). The three influenza A (H3N2) viruses tested showed reduced titers with antisera produced against A/Brisbane/10/2007, the 2009-2010 Northern Hemisphere A (H3N2) vaccine component, and were antigenically related to A/Perth/16/2009, the WHO recommended A (H3N2) component of the 2010 Southern Hemisphere vaccine formulation.

Influenza B viruses currently circulating globally can be divided into two distinct lineages represented by the B/Yamagata/16/88 and B/Victoria/02/87 viruses. The B component of the 2009-10 vaccine belongs to the B/Victoria lineage. The four influenza B viruses tested belong to the B/Victoria lineage and are related to the influenza vaccine component for the 2009-10 Northern Hemisphere vaccine (B/Brisbane/60/2008).

Four hundred eleven (99.8%) of 412 2009 influenza A (H1N1) viruses tested are related to the A/California/07/2009 (H1N1) reference virus selected by WHO as the 2009 H1N1 vaccine virus and one virus (0.2%) tested showed a reduced titer with antiserum produced against A/California/07/2009.

Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Weekly National Summary, October 1, 2006 – November 21, 2009





To access the entire CDC weekly surveillance report, visit http://www.cdc.gov/flu/weekly/fluactivity.htm

From http://www.cdc.gov/h1n1flu/updates/us/#totalcases:

U.S. Influenza and Pneumonia-Associated Hospitalizations and Deaths from Aug 30 – Nov 21, 2009

Cases Defined by	Hospitalizations	Deaths
Influenza Laboratory-Tests**	29,348	1,224

**States report weekly to CDC either 1) laboratory-confirmed influenza hospitalizations and deaths or 2) pneumonia and influenza syndrome-based cases of hospitalization and death resulting from all types or subtypes of influenza. Although only the laboratory confirmed cases are included in this report, CDC continues to analyze data both from laboratory confirmed and syndromic hospitalizations and deaths.

International (WHO, November 27): During the weeks 44-45, many countries in the northern hemisphere reported increasing pandemic influenza A (H1N1) 2009 virus activity. In tropical regions of the Americas and Asia, influenza activity due to 2009 H1N1 remained variable with most countries in the tropical areas of Central and South America reporting declining influenza activity, with the exception of Peru and Colombia. Activity in the southern hemisphere was low or below baseline.

In the northern hemisphere, widespread outbreaks of pandemic influenza A (H1N1) 2009 were reported in Europe particularly in countries in Scandinavia, eastern Europe and south-eastern Europe. Increased activity was seen in some parts of Asia and a number of regions in Canada. In the United States of America, influenza transmission remained geographically widespread, although activity appeared to have recently peaked in most areas except in the northeastern United States.

Widespread outbreaks were reported in Belarus, Belgium, Bulgaria, Denmark, Finland, Germany, Iceland, Israel, Japan, Mongolia, Netherlands, Norway, Republic of Moldova, Russian Federation, Spain and Sweden. Regional outbreaks were reported in Austria, China, France, Italy, Kazakhstan, Morocco, Poland, Portugal, Serbia, Switzerland, Romania, Ukraine and the United Kingdom of Great Britain and Northern Ireland.

Local levels of pandemic influenza A (H1N1) activity were reported in Afghanistan, Albania, Argentina, Azerbaijan, Bosnia and Herzegovina, Croatia, Czech Republic, Estonia, France, Georgia, Greece, Hungary, Iran, Italy, Madagascar, Serbia, Slovakia, Slovenia, Tunisia and Turkey. Sporadic pandemic influenza A (H1N1) 2009 activity was reported in China Hong Kong Special Administrative Region, Kenya, Latvia, Lithuania, New Zealand, Senegal and Sri Lanka.

The level of seasonal influenza activity in most countries was low with only sporadic detections. China reported local outbreaks of H3 as well as low levels of H1 and B. Sporadic seasonal influenza activity was observed in Canada (H3,B), China Hong Kong Special Administrative Region (H1,H3,B), France (B), France French Guiana (B), Kenya (H3,B), Russian Federation (H1,H3,B), Senegal (H3) and Tunisia (H3,B). Australia, Kyrgyzstan and Uzbekistan reported no influenza activity.

MDCH reported **WIDESPREAD INFLUENZA ACTIVITY** to the CDC for the week ending Nov. 28, 2009.

For those interested in additional influenza vaccination and education information, the MDCH *FluBytes* is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Avian and Novel Influenza Activity

WHO Pandemic Phase: Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

National, Human 2009 H1N1 (The Charleston Daily Mail [edited], November 24): A West Virginia physician who claimed to have contracted the pandemic (H1N1) 2009 virus twice now has proof -- from the Centers for Disease Control and Prevention in Atlanta, Georgia, no less -- that her claims were true.

Dr. Debra Parsons, a pediatrician at Kid Care West in Cross Lanes, was met with reactions of doubt from local health officials last month when she said 2 flu tests had come back positive for H1N1, or swine flu. Parsons 1st came down with the virus, complete with all the telltale symptoms, in August. Her son became ill at the same time with the same symptoms. Figuring they had the same bug, Parsons tested herself to see what it was. The test came back positive for Influenza A, so the lab at Charleston Area Medical Center (CAMC) sent it to be sub-typed. Parsons was positive for H1N1.

Parsons and her son recovered, but in October they started having the same symptoms, but they became much worse. They were both tested this time, and the results were the same -- they were positive for Influenza A and then [pandemic] H1N1. "It was swine flu both times," Parsons said.

Dr. Rahul Gupta, director of the Kanawha-Charleston Health Department, and John Law, spokesman for the West Virginia Division of Health and Human Resources, were skeptical of Parsons' claim. Law said the possibility of getting the flu twice was "very, very, very rare." Gupta said he was "aware of no data or scientific body of research or case reports" that indicated someone could contract H1N1 more than once.

So the specimen from the Parsons' 2nd flu test was sent to the CDC in Atlanta, Georgia, where it underwent a preliminary strain reaction test. Parsons says that test is the "gold standard" in differentiating between seasonal and swine flu.

That sample came back a couple weeks ago, and it was positive for H1N1. The CDC then requested a specimen from Parsons' August flu test. Last Friday, the results of that test came back positive for H1N1. Parsons says she's spoken with CDC representatives, and they said the double infection isn't all that unbelievable. "They said this happens every year with seasonal flu, so there's no reason to expect that it wouldn't happen with swine flu," Parsons said. "Every flu strain can change a little bit."

The pediatrician says there may have been a tiny change in the virus that stopped her immune system from recognizing it or her body never built up immunity to it. Parsons said the CDC's tests confirmed what she already knew, "so I'd know what to tell people, and I could prove that I wasn't trying to start a panic. I don't want to scare anybody. I need to know, as a physician, if it is possible or not. I want to tell my patients the truth," she said.

She says the confirmation also speaks well of CAMC's lab. "It feels good to verify that the hospitals here are doing a good job and their tests, for the most part, are accurate," Parsons said. Law, the [West Virginia] DHHR spokesman, still says most people should "rest assured if you've had it, you'll develop some immunity."Can you ever say never? No you can't."

Gupta says he needs to see Parsons' test results before he can change his opinion. He says there are only 2 ways she could have contracted the virus twice -- the virus would have had to change, which he doesn't think has happened, or her body failed to develop an antibody response to it. "That would mean you have a problem with your immune function," he said.

Parsons says to her knowledge neither she nor her son has any immunity problems. "He's welcome to see them," she said. "I've had every test that he wanted done when he was on TV."

National, Avian (OIE [edited], November 30): 2009 pandemic A/H1N1 influenza, United States
Date of first confirmation of the event: 24/11/2009; Start of Event: 16/11/2009; Date of report: 30/11/2009
State: VIRGINIA; Unit Type: Farm
Species: Birds; Susceptible: 3270; Deaths: 0; Destroyed: 0; Slaughtered: 0
Affected Population: Commercial turkey breeder flock. The barn housing the affected birds contains approximately 3,270 turkey breeder hens. No other barns on the farm are reported to be affected and no other birds have shown signs of clinical illness.

Epidemiological comments: The USDA Animal Plant Health Inspection Service (APHIS) and the Virginia Department of Agriculture and Consumer Services are conducting a comprehensive epidemiological investigation of this event. Week of 16 November 2009: A significant drop in egg production was observed in one barn only. 23 November 2009: Presumptive detection of 2009 pandemic A/H1N1 was reported to APHIS and laboratory samples were submitted to the National Veterinary Services Laboratories (NVSL). 30 November 2009: NVSL confirmation of 2009 pandemic A/H1N1 influenza virus. Information points to recent exposure of the turkeys to a farm worker exhibiting influenza-like symptoms. The farm was/and continues to be under enhanced biosecurity.
Source of the outbreak(s) or origin of infection: Unknown or inconclusive
Control Measures: No Control Measures; Animals treated: No; Vaccination Prohibited: No

National, Vaccine (FDA [edited], November 27): The U.S. Food and Drug Administration today approved Agriflu for people ages 18 years and older to prevent disease caused by influenza virus subtypes A and B.

Agriflu, manufactured by Novartis Vaccines and Diagnostics in Siena, Italy, was approved using the FDA's accelerated approval pathway, which helps safe and effective medical products for serious or life-

threatening diseases become available sooner. In this case, Novartis demonstrated that the vaccine induced levels of antibodies in the blood likely to be effective in preventing seasonal influenza.

Agriflu is administered as a single injection in the upper arm and is available in single dose, pre-filled syringes that do not contain preservatives.

For more information, visit FDA's Webpage on 2009 – 2010 Season Flu Vaccines at:
http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm100139.htm

International, Human 2009 H1N1 (Reuters [edited], November 25): The World Health Organization is looking into reports in Britain and the United States that the H1N1 flu may have developed resistance to Tamiflu in people with severely suppressed immune systems, a spokesman said Tuesday.

Britain's Health Protection Agency (HPA) said five cases have been confirmed in Wales of patients infected with H1N1 resistant to oseltamivir -- the generic name of Roche and Gilead Sciences Inc's antiviral drug Tamiflu.

The patients had serious conditions that suppressed their immune systems, which can give the virus a better than usual opportunity to develop resistance, the HPA said. It said the drug-resistant strain had probably spread person to person. "We have seen the reports, we need to look into them," WHO spokesman Thomas Abraham said in Geneva.

The U.S. Centers for Disease Control and Prevention last week also reported four cases of H1N1 resistant to Tamiflu at Duke University Hospital in North Carolina. All were said to be very ill with underlying severely compromised immune systems and multiple other complex medical conditions.

The WHO spokesman said both the reports involved Tamiflu resistance in people with severely compromised immune systems. "We'll see if we need to put any additional measures in place to protect this vulnerable group of patients. It might mean that they are at more serious risk than others," Abraham said. People with suppressed immune systems, such as those undergoing chemotherapy or suffering from HIV are more likely to fall ill from infections.

The WHO has previously reported cases of the pandemic virus being resistant to oseltamivir but says these are rare.

Abraham, asked whether the cases in Wales would be the first instance of person-to-person transmission of a Tamiflu-resistant form, replied: "As far as I know there have been possibilities but it never has been conclusively shown."

H1N1, a mixture of swine, bird and human viruses, has killed at least 6,770 people globally, according to the WHO. Most people suffer mild symptoms such as aches or fever, but recover without special treatment, it says.

Separately, the WHO said it was still probing whether a mutation in the H1N1 influenza strain, detected most recently in Norway last week, is causing the severest symptoms among those infected. The Norwegian Institute of Public Health said last Friday the mutation could affect the virus' ability to go deeper into the respiratory system, causing more serious illness.

"It is a major issue we are looking at," Abraham said. "If the mutation in fact is associated with severe cases then we really need to know about it. This might be a signal. We need to investigate," he said. "As of now there is no evidence of a particular association with severe cases."

So far, antiviral drugs and vaccines have been effective against the mutated form, he said.

There have now been four cases of mutated virus in patients in Norway, following a similar mutation in H1N1 viruses circulating in several other countries since April, he said. The other countries are Brazil, China, Japan, Mexico, Ukraine and the United States.

"What we've seen has been pretty much equal in terms of severe and non-severe cases," Abraham said.

International, Human (WHO, November 27): The Ministry of Health of Egypt has reported a new confirmed human case of avian influenza A(H5N1). The case is a 3 year-old male from Minia Governorate. His symptoms started on 21 November 2009. He was admitted to hospital on 22 November

and his condition is stable. Investigations into the source of infection indicated that the case had close contact with dead and/or sick poultry. The cases were confirmed by the Egyptian Central Public Health Laboratories. Of the 89 cases confirmed to date in Egypt, 27 have been fatal.

International, Canine (Xinhuanet [edited], November 28): China's Ministry of Agriculture has called for intensified monitoring and investigation of A/H1N1 flu in animals after 2 samples from sick dogs were tested positive for the virus. The veterinary clinic of College of Veterinary Medicine at the China Agricultural University reported Wednesday that 2 out of 52 samples from sick dogs were tested positive for A/H1N1 flu virus, the ministry said late Friday.

Analysis of genetic composition found the virus detected in the samples and those found on human A/H1N1 flu cases were 99 percent homologous, it said.

The ministry urged local authorities to further enhance prevention and control, intensify monitoring and investigation in animal cases of A/H1N1 flu, and closely watch the virus mutation situation in animals.

International, Swine (OIE [edited], November 26): Indonesia; Pandemic influenza A/H1N1
Date of first confirmation of the event: 15/09/2009; Start of Event: 27/08/2009; Date of report: 26/11/2009
Province: KEPULAUAN RIAU; District: Batam; Sub-district: Bulan Island
Unit Type: Farm; Location: PT Indotirta Suaka
Species: Swine; Susceptible: 250000; Deaths: 0; Destroyed: 0; Slaughtered: 0
Outbreak summary: Total outbreaks = 1 (Submitted)

Epidemiological comments: Outbreak investigation has been conducted by Disease Investigation Center, Region II, Bukittinggi. 180 nasal swabs and serum samples were collected in pigs in the breeder, weaner and farrow/finishing units. 33 samples were positive for influenza A and divided on 11 pool samples, which were sent to the Indonesian Research Center for Veterinary Sciences and to the Australian Animal Health Laboratory for advanced tests. 6 samples were positive for pandemic influenza A/H1N1. The Ministry of Agriculture officially declared on 23 November 2009 that an outbreak of pandemic influenza A/H1N1 occurs in pigs.
Source of the outbreak(s) or origin of infection: Unknown or inconclusive
Control Measures Applied: Quarantine, Movement control inside the country, Screening
Animals treated: No; Vaccination Prohibited: No

International, Swine (OIE [edited], November 30): Pandemic influenza A/H1N1 2009, Finland
Start date: 18 Nov 2009; Date of 1st confirmation of the event: 25 Nov 2009; Report date: 30 Nov 2009
Outbreak 1: Teuva, Lansi-suomi; Epidemiological unit: Farm

Species: Swine; Susceptible: 950; Cases: 800; Deaths: 0; Destroyed: 0; Slaughtered: 0
Affected Population: A farm with 150 sows and 800 fattening pigs. The fattening pigs were sick with lack of appetite, fever and mild respiratory signs. All pigs recovered fully in 1-2 days.

Source of the outbreak(s) or origin of infection - Contact with infected person.
Epidemiological comments: The farmers were sick with flu-like symptoms a few days before the pigs got sick. The farm is under voluntary restrictions agreed by the industry, which consist of a 2-week quarantine for delivery of fattening pigs to other farms and a 4-week quarantine for delivery of breeding pigs to other farms. Pigs sent to slaughter must be free of clinical signs.
Control measures: Measures applied: Quarantine; No vaccination; No treatment of affected animals

Michigan Wild Bird Surveillance (USDA, as of December 3): For the 2009 testing season (April 1, 2009-March 31, 2010), HPAI subtype H5N1 has not been recovered from any of the 107 Michigan samples tested to date, including 58 live wild birds, 35 hunter-killed birds and 14 morbidity/mortality specimens. H5N1 HPAI has not been recovered from 14,522 samples tested nationwide. For more information, visit the National HPAI Early Detection Data System at http://wildlifedisease.nbii.gov/ai/.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at http://www.michigan.gov/emergingdiseases.

Please contact Susan Peters at PetersS1@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

Contributors

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to November 5, 2009)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 11/12/09)

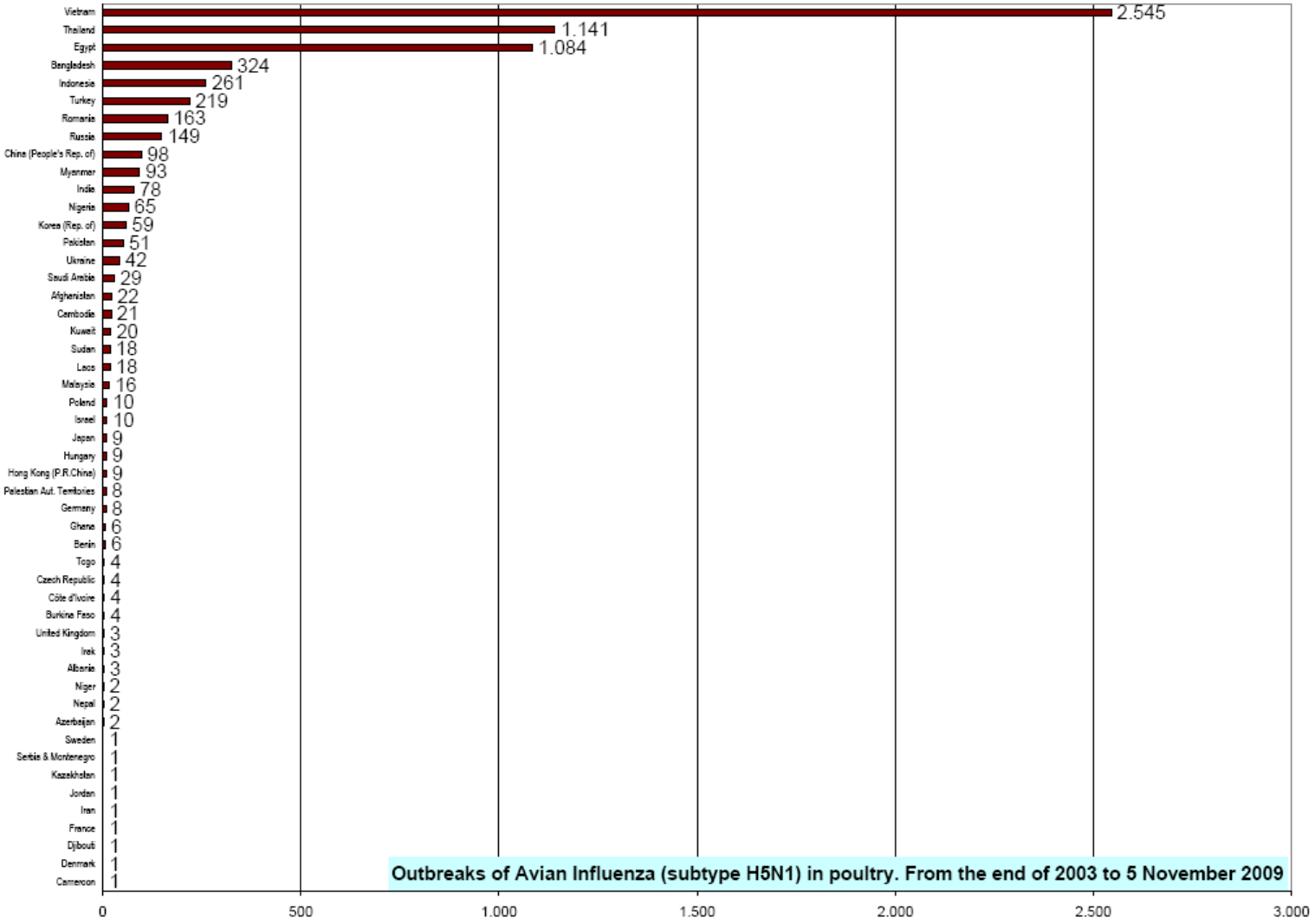

Table 2. H5N1 Influenza in Humans (Cases up to November 27, 2009)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_11_27/en/index.html Downloaded 11/30/2009)

Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	0	0	8	7
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	38	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	38	4	89	27
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	0	0	141	115
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	4	4	111	56
Total	4	4	46	32	98	43	115	79	88	59	44	33	49	12	444	262